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The CHEMIST

DECEMBER, 1940 VOL. XVII, No. 9

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The CHEMIST

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BAKER'S ANALYZED C. P. CHEMICALS ARE SOLD BY THESE REPRESENTATIVE LABORATORY SUPPLY HOUSES

Teacher and Pupil

By Ed. F. Degering, F.A.I.C., and
Rosemary Ince,
Purdue University, Lafayette, Indiana.

I. THE NEF LINE OF CHEMISTS

Picture by courtesy of *Journal of Chemical Education*

E. Adolf von Baeyer

ADOLF VON BAEYER, pioneer German chemist, Nobel prize winner, and perhaps the leader of those who built up the enviable pre-war position of Germany in the chemical industry, was born in Berlin in 1835. His father was Johann Jacob von Baeyer, chief of the Berlin Geodetical Institute from 1830 until his death in 1885. Young Baeyer studied chemistry at Heidelburg under the tutelage of R. W. Bunsen and F. A. Kekulé. In 1858 he received the Ph.D. degree at Berlin and remained in that city for several years

as a private tutor. During this time he came under the influence of the famous A. W. von Hoffman.

In 1866, he was made assistant professor, and five years later was appointed professor of chemistry and director of the new chemical laboratories at Straussburg, where such famous chemists as Emil Fischer, C. Graebe, and C. Liebermann studied. In 1875 he succeeded to the chair of Liebig in Munich, which had been declined by Kekulé in favor of his able student. While at Munich he built the Chemisches Institute, where two generations of chemists from all over the world have since received their training. He died in 1917, after forty-two years at Munich.

Baeyer was one of the fathers of modern organic chemistry. Many of the fundamentals of the science were ferreted out by him and by the many distinguished chemists whom he trained.

The name of Baeyer is inseparably linked with the artificial production of indigo, on which subject he started research in 1865. For his very complete investigation of the nature and composition of this substance, he was awarded the Davy medal of the Royal Society of London in 1881.

His patents on methods of producing indigo were purchased in 1880 by two chemical concerns, the Badische Anilin und Soda Fabrik and the Hoechst Farbwerke. The companies carried on intensive joint research for eighteen years, during which time they spent over five million dollars in search of a feasible method of manufacture. Two methods were finally developed, one in which the starting material was naphthalene and the other benzene.

To celebrate his seventieth birthday in 1905, his complete scientific papers were collected and published at Brunswick in two volumes entitled, *Gesammelte Werke*. In the same year he also received the Nobel prize for chemistry, in recognition of his work on indigo.

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The Young Chemist and the Government Service

By **Louis Marshall, F.A.I.C.**

The seventeenth of a series of articles on the opportunities for chemists in the Government Service.

The Air Corps of the War Department

THE Air Corps of the War Department, which is now experiencing a tremendous expansion because of the known potency of this arm in modern warfare, maintains chemical laboratories at the famous aviation center at Wright Field in Dayton, Ohio. One of its functions is the testing of the materials used in aeronautics, such as fuels and oils, paints, enamels, and ferrous and non-ferrous metals. The products are of higher quality than those intended for ordinary use, and the specifications governing their purchase are correspondingly more rigid. For example, the chemical composition required for the grade of steel tubing known as "stainless stabilized" is as follows:

Chromium (minimum)	17.0 %	Carbon (maximum)	0.07%
Nickel (minimum)	8.0 %	Manganese (maximum)	1.5 %
Silicon (maximum)	1.50%	Phosphorus (maximum)	0.03%
Copper (maximum)	0.50%	Sulphur (maximum)	0.04%

The columbium content must be not less than ten times the carbon content. However, titanium equal to not less than 5.5 times the effective carbon content may be used instead of the columbium. The "effective carbon" is defined as the actual carbon content minus 0.02 per cent. The specification covering this product, as well as the specifications for others, are drawn up only after a most careful study of the properties and the functions which the articles are intended to perform. This particular grade of steel tubing is used in the manufacture of exhaust manifolds and ring collectors for aircraft. Researches on materials are being continually carried out throughout the world; and in this country, particularly at the central laboratories of the National Advisory Committee for Aeronautics, Langley Field, Virginia. When advances are made, the appropriate specifications are quickly amended

to meet them. The methods employed in the chemical analysis of steels, paints, fuels, and other products are the official methods which have been adopted by the American Society for Testing Materials.

Similarly, the brass which is purchased for use in the manufacture of certain aircraft parts has to meet requirements which are more rigid than those for ordinary brass.

The specifications governing the purchase of aircraft engine fuel are particularly exacting. The gasoline is subjected to a distillation test, and at least ten per cent of the quantity taken must have evaporated when the thermometer reads 70° C. At 110° C, not less than fifty per cent must have evaporated; and at 160° C, not less than ninety per cent. At the end of the distillation, the residue in the flask must not exceed two per cent. The gasoline must have a certain anti-knock value; its corrosion effect must be practically negligible; and its sulphur content must not exceed one-tenth per cent.

All of the other materials which are purchased by the Air Corps are likewise required to meet specifications which are very definite and which mean exactly what they say. If a commodity fails to conform in any particular to the requirements of the specification governing its purchase, it is rejected. By this means, the hazards which are inherent in aviation are reduced as far as it is humanly possible to reduce them.

Another important function of the chemical laboratories is the investigation of products employed in aerial warfare. For instance, titanium tetrachloride is an agent which is used for laying down smoke screens. The liquid is sprayed from a tank carried on the airplane, and the spray reacts with the water vapor present in the atmosphere, forming $TiCl_4.5H_2O$. This compound undergoes rapid hydrolysis into titanium hydroxide and hydrochloric acid, thus producing a dense smoke. Many other problems of a military nature, such as those involved in aerial photography, are investigated, but, as is the custom, the results which are obtained are treated confidentially.

The chemists in the Air Corps are all stationed at the laboratories at Wright Field. They are distributed among the grades as follows: One junior chemist, one assistant chemist, one associate chemist, and one full chemist. In addition, there are two physical science aides who assist in carrying out the routine chemical analyses.

The Laboratory of the Government Printing Office

ONE of the most wonderfully equipped laboratories for the testing of all kinds of papers, inks, bookbinding leathers, and other materials used in the printing trades is maintained by the United States Government Printing Office in Washington, D. C. This establishment, the largest printing plant in the world, employing more than five thousand persons, takes care of the printing requirements of our Government. An indication of the immense volume of work accomplished by the Printing Office is afforded by the following figures. In one year, there were published 25,495,709 copies of miscellaneous publications; 71,916,025 publications of the octavo type; 6,291,568 copies of the *Congressional Record;* 234,882,275 post office money orders; 282,844,803 letterheads and envelopes, and so on. A good deal of the work was done under "rush" conditions, and the neatness and efficiency with which it was accomplished have evoked the gratitude and admiration of the other Government establishments. For example, the Printing Office received from the Veterans Administration an order for 6,000,000 copies of a form known as "Application for Payment of Adjusted-Service Certificate." This large quantity was printed in two days. On another occasion, the office received from the Department of Justice copy for a five hundred and thirty-nine page brief. Although it arrived late on a Friday, it was requested that one hundred copies be printed in time for delivery the following Monday morning. The request was carried out, and the job delivered on time. Recently, the Tariff Commission sent in a manuscript dealing with "Recent Developments in the Foreign Trade of Japan, Particularly in Relation to the Trade of the United States." Although the report comprised two hundred and seven pages, much of it statistical tabulations, it was printed in quantity and delivered within a few days after the receipt of the manuscript. These and many other jobs are done not only in the shortest possible time, but also with complete accuracy. These achievements are made possible by the fine equipment, the expert craftsmanship, the loyal coöperation of the large force of employees, and the scientific control of the processes of production. It has been estimated that the facilities of the printing plant could make possible the setting up, printing, and binding of a book as large as the *Bible* in twenty-four hours. The publications of the Government Printing Office cover an extraordinary diversity of subjects, many of them of direct interest to chemists. The indexes to the publications can be consulted in many

of the libraries, and those publications which are of interest can be purchased from the Superintendent of Documents, Washington, D. C., for very nominal fees.

The laboratories of the Government Printing Office are devoted not only to researches upon all of the materials used in the trade, but also to the testing of papers, inks, and all the miscellaneous items which are purchased. Thus, in one year, the laboratory tested, for compliance with specification requirements, 6,750 samples of papers and envelopes, 914 samples of textiles, 753 samples of metals, 697 samples of ink making materials, and so on. These samples are representative of the deliveries of immense quantities of materials used by the Office in the conduct of its work. The testing is necessary because deliveries are sometimes found to be unable to meet the requirements of the specifications under which they were bought. For example, one lot of paper purchased on a contract which specified one hundred per cent rag stock, was found to be only sixty per cent rag. A shipment of Babbitt metal was analyzed and found to contain eighty per cent of lead instead of the required ninety per cent of tin. One delivery of oil consisted of ninety per cent mineral oil instead of the required pure neat's foot oil. However, most shipments are found to comply fully with all of the specification requirements.

The equipment of the testing laboratory is unsurpassed. There are microscopes for determining the fibre composition of paper; apparatus for testing the thickness, smoothness, permeability, opacity, bursting strength, tearing strength, and folding endurance of paper. There is a quinhydrone electrode and a glass electrode for making hydrogen ion determinations. There are rooms which are maintained at constant temperature and humidity in order that the testing of all papers may be done under identical conditions. These are only a few examples of the equipment which the laboratory possesses, and it has acquired such a reputation for the quality of the testing work, that other Government laboratories often send to it for referee analysis, samples of paper over which some controversy has arisen.

The research activities of the laboratory are conducted with a view to establishing new and better standards of printing materials. In coöperation with the United Typothetae of America, the research laboratory worked out specifications for six grades each of bond and ledger paper. Four of these grades consist, wholly or in part, of rag

stock, and the remaining two consist entirely of chemical wood. These six grades are ample to cover all of the commercial uses of the papers. A paper consisting of one hundred per cent rag stock, for example, would be used for permanent record purposes; one of chemical wood would be entirely suitable for mimeograph paper and for ordinary, everyday use.

It has been mentioned, in connection with the work of the Bureau of Agricultural Chemistry and Engineering, that the Government Printing Office is pioneering in the use of chrome tanned leather for bookbinding purposes. This type of leather is more resistant to acid rot than the ordinary vegetable tanned type, and therefore more durable. The results so far attained have been very encouraging, but further investigations will be necessary to produce a durable leather which also has satisfactory working qualities.

Many research problems are referred to the Government Printing Office by outside establishments. For instance, the Treasury Department requested an ink to be used in check-signing machines, and the workers in the laboratory succeeded in developing a product suitable for this purpose. Similarly, at the request of the Ordnance Department, different colored inks were developed for marking bullets used in target practice. These inks stain the cloth targets with their characteristic colors, thus making it possible to identify each hit with the firing unit. Most Government Departments, in fact, as well as the printing trades in general, are assisted in one way or another by the activities of the Government Printing Office. The laboratories of this institution are manned by the following personnel: One technical director, one assistant technical director, three associate chemists, four junior chemists, and two scientific aides.

Chemists in Our National Defense Program

Colonel Marston Taylor Bogert, F.A.I.C., will speak on "Chemists in Our National Defense Program", at a meeting of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, to be held January 17, 1941, at The Chemists' Club, 52 East 41st Street, New York, N. Y., at eight o'clock. Those interested in this subject are welcome.

Petroleum and the Tyro Chemist*

By E. M. Toby

THE student-chemist, still in the midst of his studies at his university, usually has picked out the specific chemical industry which he intends to enter, and has shaped his studies to that end. However, it might be well for such students to review the desirability of entering these previously chosen industries. Industries are static as well as dynamic—some move forward rapidly, thus offering increased incentives to the young chemist, while others move ahead very slowly, some even remaining dormant, offering less opportunity to the chemist who wishes to forge ahead in the shortest time. It is only common sense that the chances of progress are proportionate to the progressiveness of the industry in which one is employed. If an industry is expanding it creates new positions in an advanced strata, eliminating the necessity of waiting for one's superiors to be promoted, to resign, or even to "die off." Employment in a progressive industry may not be a guarantee to success, but it does eliminate some of the discouraging intermediate intervals to be encountered in less progressive industries.

It is not my contention that the petroleum industry is the most progressive industry, but it is one of the most dynamic and its path of most rapid advancement is along the route where the chemist and chemical engineer are indispensable to its success, and their chances of reward by means of rapid advancement are greatly enhanced thereby.

Until recently the petroleum industry strove to supply by simple refining methods, materials for propulsion, lubrication, illumination and combustion. However, the increased demands placed upon the industry by the motor car manufacturers for better fuels, from a detonation viewpoint, led to investigation of chemical processes whereby the hydrocarbons present in crude oil could be transformed into hydrocarbons of better detonation properties. The demand for processes to increase the yield of gasoline brought like research. This intense investigation into the chemical behavior and properties of petroleum was followed by research into what synthetic products can be produced from petroleum. Today the importance of chemistry in petroleum is increased even more by the demands of national defense.

Today the petroleum industry has changed from almost a non-technical industry to a very technical one. No longer can a refinery operate with a staff of non-university trained testers and operators. Today, a modern refinery must have a trained exploration and production staff; a highly trained research and development department; a technically trained control laboratory, engineering and refining staff; and a sales staff including some technically trained salesmen, scientific guidance and supervision; and a trained coördination and liaison staff. The applicability of the chemist and chemical engineer in petroleum is widespread—they are not confined to one channel, but they are indispensable to all phases of the

*Reprinted through the courtesy of *The Hexagon* of Alpha Chi Sigma fraternity.

industry. Petroleum is a chemist's business and it is the able chemist who will be pushed to the front over men of no training, over men of general training, over engineers and over physicists. This is not true of the other dynamic chemical industries.

In my opinion the chemical advance of the petroleum industry has but begun. The manufacture of synthetics from petroleum, and from its products, is in its infancy and it is probable that it will be, by far, the most important raw material for the synthesis of organic chemicals. Alcohols, esters, fatty acids, ethers and ketones have long been produced by the industry. The manufacture of glycerine from petroleum is a new development of great commercial and military importance, as is the manufacture of pure toluene, the base of trinitrotoluene. High anti-knock aviation fuels ranging from 90 to 125 Octane Number which have permitted the rapid strides of the aviation industry in recent years, are made in large quantities by synthetic chemical processes. Petroleum thinners and solvents of high and low aromatic content are now available, in any boiling and evaporation range. Synthetic resins from petroleum are new and adaptable to many industries. Of great present interest are the new synthetic rubbers, some of which are made from butadiene, a gas produced by cracking (pyrolysis) petroleum under certain conditions. These products are but some of those manufactured from petroleum and indicate the various fields which synthetics, from petroleum, may soon invade.

In my opinion the student preparing to enter the petroleum industry does not necessarily need a specialized course in petroleum or in petroleum engineering. Of course, such a course is of advantage but good sound training in either chemistry or chemical engineering is a sufficient background for the average neophyte in petroleum. Of great importance to the student is organic chemistry, and the more advanced courses available the better. The same applies to physical chemistry and to mathematics. Graduate work is helpful but by no means essential unless one plans to specialize in pure research. The petroleum industry is a great teacher and the knowledge one receives after entering into it is the basis for a thorough understanding of refining and its many ramifications. A thorough, basic and sound university training in chemistry is necessary in order that one may take hold of the problems presented on entering the industry.

There are no hard and set rules for locating a position. I would suggest that a student select a list of those companies with which he would be interested in working, and write the personnel director of each as to his qualifications, college record, etc. Such a list may be secured from government publications on the subject and from trade journals. A clear, concise letter, telling of one's interest in petroleum, plus a brief but accurate listing of one's college and personal record, plus a recent photograph is the most effective approach. It is naturally to one's advantage to follow up as many of these letters by personal interview as is possible.

The young chemist on entering the industry will probably be assigned to the refinery or control laboratory. This laboratory generally controls the activities of the entire plant, having jurisdiction over the crude oil receipts; the primary fractionation units; the cracking, polymerization and alkalation units; the treating plant; the asphalt units; the chemical by-products division; the

lubrication and grease plants; the stabilization and gas recovery units; the blending to finished products and control over all shipments. Thus the laboratory controls the raw material as received at the plant, its flow from unit to unit in the plant, and full control over the finished product. The average chemist passes through this laboratory spending some time in each unit of the laboratory. . . .

From the refinery laboratory the chemist can either be moved into the plant, whereby the knowledge gained in the laboratory will permit him to assume a junior supervisory position, or he can move into the research, development or road performance laboratories.

Many young chemists, who are so minded and equipped, are put through the laboratory, and possibly into the plant or research laboratory, with the idea in mind of later transferring them into the sales division. Such men are generally trained in the unit of the laboratory which handles the products in which they will later specialize.

I am particularly interested in the applicability of chemists to sales work. The day of the old time salesman in the petroleum industry has passed. No longer can a salesman get by with a few cigars, back slapping, the telling of some stories and possibly the buying of a few drinks. The salesman today, selling the technical products of the petroleum industry, must be technically minded. He must know the products he is selling, he must know their uses and he must be able to sell them. I do not regard selling as a God given art, instead I regard it as a product of knowledge, personality and common sense. There are no rules to develop personality and I believe that the confidence brought about by the thorough knowledge of what one is selling will imbue in most persons a suitable sales personality. I believe that the less one does to develop a personality, the better. The greatest handicap that a chemist in sales must overcome is not to flaunt his knowledge and to know when to be silent even though he knows that he is right and his potential customer wrong. Many a salesman has won an argument, and lost a sale.

From direct sales the chemist can go into coördination work, this consisting principally of correlating the work of the sales department with the refinery. In other words, it will be his job to see that the refinery doesn't make what the sales department can't sell, and the sales department doesn't sell what the refinery can't make. The study of markets and future trends comes under this department. The way to a sales executive position often comes through this channel.

One must not forget that one's days of study are never past. The value of belonging to societies and associations cannot be overestimated. The chemical journals and the trade journals should be the object of constant study. Trade groups and discussion groups are invaluable to the beginner. After one is located, the real course of study has just begun and failure to keep abreast of current developments is usually disastrous.

In reviewing the entire field, I feel that the petroleum industry offers the student a worth while opportunity and I would suggest that all students give this industry careful consideration.

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November Meeting

The one hundred and seventy-fourth meeting of the National Council of The American Institute of Chemists was held on November 20, 1940, at the Chemists' Club, 52 East 41st Street, New York, N. Y., at 6:30 P. M.

President Harry L. Fisher presided. The following officers and councilors were present: Messrs: E. R. Allen, H. L. Fisher, J. W. E. Harrisson, C. A. Marlies, R. J. Moore, N. A. Shepard, F. D. Snell, and M. Toch. Mr. M. R. Bhagwat, Dr. W. D. Turner, and Miss V. F. Kimball were present.

The minutes of the preceding meeting were read and approved.

In the absence of the treasurer, Dr. Maximilian Toch read the treasurer's report, showing total cash in banks and on hand of $4929.40 with bills payable of $56.06 and Chapter refunds payable of $49.70. Upon motion made and seconded, this report was accepted.

The Wage-Hour Ruling and the correspondence regarding it, submitted by Paul H. Horton of the Oklahoma Testing Laboratory, Oklahoma City, Oklahoma, was read and discussed. Upon motion made and seconded, the president appointed the following Committee to consider this matter: Dr. N. A. Shepard, Dr. W. D. Turner, Dr. E. R. Allen, Dr. R. J. Moore, and Dr. H. L. Fisher, *ex officio.* The committee was requested to meet on Tuesday, November 26th, at 5:00 P. M., to determine

action to be taken on the Federal Wage and Hour Law and to report its recommendations to the Council.

The by-laws submitted by the Pennsylvania Chapter to the National Council for approval were read and approved.

The following Associates were raised to Fellows: James S. Boyle, Ruth E. Corbet, James Burwell Ficklen, William L. Filbert, John Richard Gay, Norris Robert Kosches, Albert J. Kroner, Robert John Mackey, John Sprague Odell, Frank Spitaleri, and John Goddard Wright. James S. Wallerstein was raised from Junior to Fellow.

Upon motion made and seconded, the secretary was instructed to have the names of the applicants for membership and the names of those requesting change in rank published in THE CHEMIST, prior to action taken by the National Council.

The president read a letter from Dr. W. T. Read reporting on the activities of the Membership Committee.

The following new members were elected:

FELLOWS:

Auer, Laszlo
(1940), *Chief Chemist*, Electro-Technical Products, Inc., Nutley, N. J.

Bainbridge, William C.
(1940), *Technical Director*, H. Kohnstamm and Company, Inc., Brooklyn, New York.

Hull, Washington
(1940), *Research Chemist*, American Cyanamid Company, Stamford, Conn.

Kohm, Joseph A.
(1940), *Chief Chemist*, Land-Fill Survey, New York University, New York, New York.

Kropa, Edward L.
(1940), *Research Chemist*, American Cyanamid Company, Stamford, Conn.

Loebel, Zanvil C.
(1940), *Research Chemist*, General Chemical Company, New York, N. Y.

Melnick, Daniel
(1940), *Fellow*, Food Research Laboratories, Long Island City, N. Y.

Rosendahl, Edward
(1940), *Vice President and Managing Director*, Glyco Products Company, New York, New York.

Work, Lincoln T.
(1940), *Director of Research*, Metal and Thermit Corporation, New York, New York.

ASSOCIATE:

Dorn, Herman William
(1940), *Research Chemist*, Amino Products Company, Rossford, Ohio.

Evans, William H.
(1940), *Metallurgist*, Alan Wood Steel Company, Conshohocken, Penna.

Krol, Adam T.
(1940), *Chemist and Chief*, Verley Chemical Company, Chicago, Ill.

Senter, Lowell
(1940), *Director*, Ferguson Laboratories, Inc., New York, New York.

JUNIORS:

Brookes, William R.
(1940), *Graduate Student*, University of Colorado, Boulder, Colo.

Papps, George
(1940), *Research Chemist*, National Oil Products Company, Harrison, New Jersey.

Warth, Henry Kent
(1940), *Chemical Field Engineer*, Crown Cork and Seal Company, Baltimore, Maryland.

STUDENT:

Wilson, John Senne
(1940), *Student*, Arkansas State College, State College, Ark.

Upon motion made and seconded, William L. Hill was raised from Associate to Fellow.

The Committee on Ethics was instructed to continue its investigations on the application which was referred to it.

Dr. J. W. E. Harrisson reported for

the Committee on Licensing followed by a report from Dr. Snell on the activities of the local Committee on Licensing.

Dr. Marlies reported for the Interrelations Committee and recommended that resignations from various sections of the country be referred to the Membership Committee serving in those districts.

Mr. Bhagwat reported the activities and progress of the Chemist Advisory Council.

The date for the next meeting of the National Council was set for Wednesday, December 18, 1940.

There being no further business, adjournment was taken.

Applications for Membership

Final action will be taken by the National Council at its meeting on Wednesday, December eighteenth, on the following applications:

For Fellow:

Pettit, William S.
Instructor in Chemistry, Ursinus College, Collegeville, Penna.

Rainer, William C.
Analytical and Research Chemist, Crown Cork and Seal Company, Inc., Baltimore, Md.

Vlacos, Pericles G.
Consulting Chemist, W. S. Purdy Company, Inc., 128 Water Street, New York, N. Y.

For Associate:

Robinson, Harold William
Chemist-microscopist, Baker and Company, Newark, N. J.

For Junior:

Segal, Nathan
Chief Chemist and General Manager, Sanders-Segal Color Company, Brooklyn, N. Y.

Waters, William Gabriel
Chemist, Reed and Carnrick, Jersey City, N. J.

To be Raised from Associate to Fellow:

MacMullen, Clinton W.
Research Chemist, Rohm and Haas Company, Inc., Philadelphia, Penna.

Schenker, Herbert S.
Textile Consultant, Consumers' Testing Laboratories, Philadelphia, Penna.

Stone, Irwin
Research Chemist, Wallerstein Laboratories, New York, N. Y.

To be Raised from Junior to Associate:

Conklin, Albert E.
Chief Chemist, C. A. Reed Co., Williamsport, Penna.

Hultquist, Martin E.
Research Chemist, Calco Chemical Company, Bound Brook, N. J.

Kennedy, James J., Jr.
Research Staff, Resinous Products and Chemical Company, Philadelphia, Pa.

Shull, Kenneth E.
Chemist and Bacteriologist, Philadelphia Suburban Water Company, Bryn Mawr, Penna.

To be Raised from Student to Fellow:

Schachtmeister, Sidney C.
Chemist, Columbia Farms, 400 Stanley Avenue, Brooklyn, N. Y.

To be Raised from Student to Associate:

McBride, Edward Thomas
Laboratory Assistant, Bakelite Corporation, Bloomfield, N. J.

To be Raised from Junior to Fellow:

Noble, Wesley M.
Assistant Chemist, Western Regional Research Laboratory, Albany, Calif.

CHAPTERS

New York

Chairman, William Howlett Gardner *Vice-chairman,* W. D. Turner
Secretary-treasurer, D. H. Jackson
17 John Street
New York, N. Y.

Council Representative, Marston L. Hamlin

Howard S. Neiman Honored by New York Chapter

A testimonial dinner to Howard S. Neiman, secretary of THE AMERICAN INSTITUTE OF CHEMISTS, was given by the New York Chapter at The Chemists' Club, New York, N. Y., on November first. More than one hundred and fifty guests, including many prominent chemists, attended the dinner and reception to pay tribute to Mr. Neiman's work in building up the professional organization of American chemists, since 1923, to its present high position. Dr. William Howlett Gardner, chairman of the New York Chapter, acted as toastmaster. Those at the speakers' table were: Colonel Marston Taylor Bogert; Dr. Maximilian Toch, past president of the INSTITUTE; Dr. W. T. Read, vice-president of the INSTITUTE, Mr. Howard S. Neiman, Dr. Harry Lynn Fisher, president of the INSTITUTE, and Dr. Robert J. Moore, past president. Letters or telegrams were read from Dr. Henry G. Knight, past president of the INSTITUTE; Charles Richter; Edward L. Gordy, former editor of THE CHEMIST; Dr. Frederick E. Breithut, past president of the INSTITUTE; Mr. Walter S. Landis, and Dr. Horace G. Byers, the INSTITUTE'S first president.

Dr. Fisher, the first speaker, likened the secretary's work to the invisible threads in the warp of the fabric from which the INSTITUTE is made, and stated that Mr. Neiman proves the truth of the old saying, "If you want anything

done, give it to a busy man."

"The work of the secretary is especially arduous", said Dr. Read, "he really works and he makes everybody work with him. The success of this INSTITUTE is very largely due to this man who is on the firing line twelve months of the year. It is a great pleasure to serve with him to make this INSTITUTE what it should be."

"No one could have helped me more than did the secretary, while I was president of the INSTITUTE", Dr. Toch commented. "Mr. Neiman gives up an enormous amount of time to others, and if ever there is an humanitarian and philanthropist, he is it. Everyone will tell you this."

Dr. Moore told of Mr. Neiman's career as a chemistry student at Lehigh University; as a chemist in the dye industry, as an associate of Herman A. Metz; as editor of the *Textile Colorist;* as patron and former president of the Municipal Opera Company of New York; as member of the United States Secret Service in the World War; as patent attorney; as patent and trademark editor of *The American Perfumer,* and as commodore of a houseboat in Manhasset Bay. "To be president of the INSTITUTE," Dr. Moore said, "is in a certain sense to take a course in public efficiency and the keeping of one's feet on the ground. Each president learns this from Mr. Neiman. Someone referred to him as a 'lion tamer'. The interesting part of that is that the lion never knows he is being tamed. I speak for some of the absent former presidents of the INSTITUTE in voicing their regards and love for Mr. Neiman."

Mr. Neiman recounted the history of the INSTITUTE since its founding in 1923: "I have worked under every one of its presidents and I have been on every one of its Councils. One of the things which has most impressed me is that each time the members have elected a president, that president was the man who was absolutely necessary for the situation in which the INSTITUTE found itself.

"The first president was Dr. Byers, a very lovable man. He was not a fighter, but at that time the INSTITUTE needed someone to establish good will and to win friendship. After his good work was completed, this unconscious psychology (as I might call it) of the membership elected Dr. Crossley to the presidency. No man was better suited for the job which lay before him. I think the INSTITUTE owes more to Dr. Crossley than to any other one man in the organization. He is a quiet persuasive man. I have been waiting for over twenty years for him to get angry. He was needed to put the INSTITUTE on its feet. After the expiration of Dr. Crossley's term, the membership, still following its unconscious knowledge of the man most needed for the next progression of the INSTITUTE, elected Dr. Treat B. Johnson, a man of fine scholarship and reputation as an educator. The INSTITUTE's appeal was enhanced even more to the chemists by this educator of future chemists.

"When Dr. Johnson's term of office expired, the INSTITUTE needed to progress on different lines; and the membership once again, by its curious psychological knowledge, selected Dr. Breithut for president. He is a human dynamo. He decided to tell the world about the INSTITUTE, through action. He found that the chemists in the employ of the city of New York were not properly classified, and he had this changed. The chemists in the United States Navy were also improperly classified. Dr. Breithut went to Washington, and to see President Hoover, and

he had the Navy chemists reclassified. By this time, the INSTITUTE was freely mentioned in the public press, and the INSTITUTE had also built up a membership of important chemists though they were too localized. Again the membership came to the rescue by electing Dr. Knight. He was on the road most of the time in his position with the United States Government, and he carried the message of the INSTITUTE across the continent. In this period we began to branch out geographically. Many chemists were eager to join. Then we reelected Dr. Crossley to the presidency. There was no better man than he was for this position, where the temptation might have been to collect too many members who were not fully qualified. He kept his head and made no false steps. He insisted on adhering to the highest standards of qualifications, and he also established a guide for the professional education of chemists.

"You will note that up to this time all of the presidents had been professors or highly specialized professional men. And you know what happens to organizations financially when they are run by professors. The members then elected Dr. Toch, business man and scientist. Dr. Toch came to the first council meeting and asked for the balance sheet. We didn't have any! So he called in the auditors and they showed him we were in the red! Dr. Toch immediately took hold of the INSTITUTE and put it on a business basis, and at the end of his term we were in fine financial condition and we are in still better condition now.

"Dr. Moore was then elected by this same psychological knowledge of what was needed next. He just filled in the link in the chain. When he came into the first meeting, everybody called him "Bob". He is still Bob to everybody. His position with the Bakelite Company took him all over the country, where he contacted chemists. He finished up what Dr. Knight had started. He was a good apostle for the INSTITUTE and called the attention of chemists throughout the country to our work, increasing our membership tremendously.

"I cannot tell you about Dr. Fisher —he has been in the chair for so short a time, but I am sure that this same unconscious psychology which has carried this INSTITUTE along so far at every election will not fail.

"Every chemist needs two arms. One is the arm of his scientific societies to increase his knowledge and keep him abreast of current developments in his field. The other is the arm of his professional INSTITUTE to look after his interests as a man who contributes to the profession of chemistry. It is evident that while these two arms are separate from each other, they must be coördinated in order to place the chemist in the proper scientific and professional position which he deserves."

Niagara

Chairman, J. Allan Camelford *Vice-chairman,* Alvin F. Shepard
Secretary-treasurer, Wilbert A. Herrett
109 Norwood Avenue
Hamburg, N. Y.
Council Representative, Arthur W. Burwell
Carl H. Rasch, *Alternate*
News Reporter to THE CHEMIST, Margaret C. Swisher

Pennsylvania

Chairman, Addison C. Angus *Vice-chairman,* Edward L. Haenisch

Secretary-treasurer, Harold A. Heiligman
1203 West Oak Street
Norristown, Penna.

Council Representative, Gilbert E. Seil

News Reporter to THE CHEMIST, Kenneth A. Shull

The Pennsylvania Chapter held its first meeting of the 1940-41 season at Houston Hall, University of Pennsylvania, on October twenty-ninth.

At the close of an informal dinner, attended by about thirty members, the chairman announced the following committee appointments: *Executive Committee*—Mr. E. F. Cayo, Dr. E. L. Haenisch, Dr. M. L. Moore, Dr. W. L. Obold, Mr. H. A. Heiligman, and Mr. K. E. Shull; *Dinner and Hospitality Committee*—Mr. G. E. Ullyot, Mr. C. W. MacMullen, Mr. T. E. Shea, Mr. H. A. Heiligman, and Mr. K. E. Shull; *Membership Committee*—Dr. A. C. Angus, Mr. E. F. Cayo, Dr. W. L. Obold and Mr. J. F. Couch; and *Program Committee*—Dr. E. L. Haenisch, Mr. C. M. Connor, Mr. A. G. Keller, Dr. L. P. Hansen, and Dr. J. M. McIlvain.

Dr. Obold, reporting for the By-Laws Committee, read the new Constitution which his committee had drawn up. With a few minor changes this was unanimously approved by the chapter.

An innovation to be tried this year is to have various members of the local chapter present short talks covering some phase of their work. Dr. Maurice L. Moore, of the Sharpe and Dohme Laboratories, was the first speaker of this group. He chose to discuss the various stages through which a drug must pass from conception of the idea until the product is finally marketed. The interdependence and close coöperation between the departments of organic chemical research, biochemistry, bacteriology, pharmacology, physiology, etc. was emphasized.

The main speaker of the evening was Colonel Joseph C. King, unit instructor, Chemical Warfare Reserves, whose topic was "The Professional Chemist in Relation to the Selective Service Act." Colonel King discussed all phases of the Selective Service Act, such as duties and powers of the local draft boards, method of induction into the army, types and methods of deferment, etc. His main theme, however, centered around the status of the professional chemist.

Because of the nature of the talk only members and their professional chemist friends were allowed admittance.

The Pennsylvania Chapter announces with regret the death on August 21, 1940, of one of its members, Mr. Luciano L. Biancaflor, A.A.I.C. Mr. Biancaflor had been employed in the Analytical Laboratory of E. J. Lavino and Company for eleven years.

Washington

President, Albin H. Warth

Vice-president, L. F. Rader, Jr. *Treasurer,* L. R. Heiss

Secretary, Martin Leatherman
9 Quincy Avenue, Hyattsville, Md.

News Reporter to THE CHEMIST, T. H. Tremearne

Council Representative, Albin H. Warth

Executive Committee

J. R. Adams	H. C. Fuller	N. W. Matthews	W. H. Ross
M. S. Anderson	L. R. Heiss	J. W. McBurney	E. F. Snyder
A. P. Bradshaw	J. H. Hibben	A. L. Mehring	J. J. Stubbs
R. T. K. Cornwell	B. Makower	R. M. Mehurin	E. K. Ventre
P. R. Dawson	L. N. Markwood	A. R. Merz	C. W. Whittaker
R. B. Deemer		W. M. Noble	J. F. Williams

The fall meeting of the Washington Chapter was held Wednesday, November 6, 1940, at the Wardman Park Hotel with Chapter President Dr. Albin Warth presiding.

The following committees for 1940-41 were appointed:

Membership: N. W. Mathews.

Advisory: F. O. Lundstrom, J. Bernard Edmonds, J. H. Hibben, A. R. Merz, J. W. McBurney, J. F. Williams, L. N. Markwood, W. H. Ross and the Vice President, Secretary and Treasurer members *ex officio.*

Student Medal Awards: F. O. Lundstrom, L. F. Rader, Jr. and E. S. Umberger.

Issues and Objectives: To be announced later.

Mr. Workmaster of the Roster Committee of the National Resources Planning Board gave a brief talk in which he explained the workings of the Roster Committee in contacting scientific societies and the purpose and methods of filing information from the survey. He urged full and prompt coöperation of chemists in returning the requested information for classification. It was definitely stated by Mr. Workmaster that there would be no compulsion used in case a person was offered a position under the present National Defense program.

The Chapter went on record as desiring that the 1941 national convention of the INSTITUTE be held in Washington and that the Washington Board of Trade be asked to coöperate in bringing the convention to Washington.

The tentative dates for the 1941 meetings of the Washington Chapter are January seventh, March sixth and May fourth. The Chapter extends a cordial invitation to non-resident members of the INSTITUTE to visit its meetings whenever they are in Washington. Unless otherwise noted meetings will be held at the Wardman Park Hotel. Visiting members are advised to contact the Chapter Secretary prior to meetings for final information.

THE SCIENCE ANGLER

Kenneth E. Shull, J.A.I.C.

Conclusive proof has been found for the theory that silicosis is caused, not by the sharp edges of silica particles, but rather by an actual chemical union between it and the living lung tissue.

One of the latest proposed treatments for this dread industrial affliction involves dusting the lungs with aluminum powder. It is believed that the metal serves its purpose by coating the particles of silica so that they are no longer able to dissolve and react with tissue.

Scattered throughout the pages of the *American Perfumer* are numerous formulae for the preparation of "home remedies". One of these, used for the removal of iron, fruit, wine, and similar stains, is so simple and effective that it is worth repeating. It consists of a mixture of equal parts of glycerine and phosphoric acid, with the addition of alcohol or acetone if the stain is particularly stubborn.

It isn't always the fault of the cook when boiled potatoes take on an ebony hue. Mother Nature is quite often the culprit.

Recent experiments have shown that the darkening of both raw and cooked tubers, upon exposure to the air, are due to oxidation reactions. In the former, melanin, one of the black pigments of the human body, appears to be the compound formed. On the other hand absorption spectra have shown that an entirely different substance, probably related to the flavones, is produced in the cooked article.

The "Zelan" treated absent-minded professor need no longer worry about his proverbial umbrella, for old Jupiter Pluvius will scurry from his person, leaving him as dry as his lectures.

Up to the present time all commercially practical waterproofing methods for fabrics consisted in simply coating the cloth surface with some hydrophobic material. The new "Zelan" process, however, is entirely chemical in nature. Applied to the fabric in aqueous solution or dispersion, the "Zelan" molecule is caused to combine with either the hydroxyl group of cellulose or the nitrogen atom of proteins.

Although the cost of this method is fairly high, it possess many advantages over others in its field: It produces a soft durable fabric that is fast to washing, resistant to wear, and dry cleaning, and is not affected by heat, light, and perspiration.

Due to its unexcelled solvent powers water dissolves and carries with it at least a portion of everything with which it comes in contact. Even those substances which we normally consider insoluble are found by spectrographic analyses to be carousing around among the water molecules.

Chemical examination of water from the Dead Sea (so named because of the inability of life to subsist in its bosom) has disclosed the fact that it has the highest salinity (245,730 ppm) of any of our large bodies of water. By contrast the total solids content of the ocean is only about 35,000 ppm. This latter figure is made up of a series of

elements ranging from 19,400 ppm. of chlorine to 0.000005 ppm of gold, with even lesser amounts of aluminum, barium, boron, cobalt, copper, lithium, manganese, nickel, and zinc.

Rivers are responsible for carrying this cargo of solubles to the sea. With this in mind one dabbler in figures, with water on the brain, has estimated that the stream waters of the world annually carry in solution something like 2,734,961,439 metric tons of solid matter, of which 11.67 per cent is silicious in character.

BOOKS

SILVER IN INDUSTRY. Edited by Lawrence Addicks. *Reinhold Publishing Corporation*, 1940. 636 pp., 6 x 9 inches. $10.00.

This meaty volume is the work of about thirty well-qualified contributors, who here report on the government-sponsored Silver Research Project, whose purpose was to explore and expand the industrial possibilities of silver. Silver has long been grouped with the "precious" metals, but its price, after declining steadily in late years, is now so low that the metal may well compete in special industrial fields with many of the so-called base metals.

Silver's several valuable properties—its ductility, high electrical conductivity, germicidal properties, and so on—have long been recognized; at thirty-five cents an ounce they may be expected to find wider application. For example, with war conditions threatening our supplies of tin, the chapters on silver as a container lining are especially timely.

The Silver Producers' Research Project (and this book) were sponsored by a group of mining and smelting companies, with the active coöperation of the National Bureau of Standards and several university and scientific organizations. An enormous amount of work has been done. The bibliography alone requires 129 pages of fine print, with over four thousand references, and another fourteen pages are given over to a list of patents relating to industrial uses of silver.

The authors first present the economic background of silver in industry; then come chapters on the technology of silver and its binary and ternary alloys, with many tables and diagrams. Later chapters discuss a variety of industrial applications, including bearings; contacts; welding; soldering; coatings of various types and thicknesses, including vaporized films and electrodeposited surfacings; catalysis; sterilization; etc.

Sensibly enough, the book devotes relatively little space to the older uses of silver—tableware, for instance—in order to devote more space to the newer uses.

It is obvious that this book will be of great interest and value to a large number of readers; the chemical engineer; the manufacturer of equipment, containers, machinery, food products, electrical devices, and what-not; the water chemist and sanitation engineer; and many more.

The style is, in most cases, clear, even entertaining, and many sections are extremely practical. For example, the chapters on soldering and on the testing of electrodeposited coatings (to mention only two) have the substantial ring found in the writings of men who

have worked with their own hands and seen with their own eyes. The volume is a valuable addition to the literature of metallurgy, pure and applied. It leaves the reader with the conviction that silver is the coming metal.

—C. M. HOKE, F.A.I.C.

A NEW DICTIONARY OF CHEMISTRY. Edited by Stephen Miall. *Longmans Green & Co.* 544 pp. $15.00.

Dr. Miall possesses the rare skill of expressing a deep erudition in simple language, which attracts both professionals and amateurs to his writing. In preparing this dictionary, he has availed himself of the able assistance of twenty-seven eminent chemists.

The dictionary is intended for the use both of chemists and laymen. That is, laymen of technical interests outside of the chemical field. For them, it provides a reference source of chemical terms and facts relating to chemicals and drugs, for use in their own special fields. Chemists who desire either to refresh their memories or to find information on subjects outside their immediate province also will find that this book fills a considerable need.

It contains, in the five hundred forty-four pages, vast numbers of entries, which include the latest advances in chemistry, inorganic, organic and physical, even to the edges of the biological sciences. Since the entries themselves are necessarily terse, many of them include references to books and articles in which further information can be found. Trade names are included in many cases.

In addition to the common noun headings, there are many biographical sketches of eminent chemists, living and dead. These include, in compact form, a note on the outstanding achievements of the subject, and manage to compress into a small space a surprising amount of valuable information.

As additional features, there are a classified reading list of eighty-five volumes and a table of physical constants of organic compounds, containing nearly two thousand entries.

As a whole, the volume should find a great many users among chemists and non-chemists; should prove itself an exceedingly handy reference for them, one which will be frequently consulted.

—KARL M. HERSTEIN, F.A.I.C.

A new illustrated booklet containing comprehensive information on pumps and pump parts has just been published by The International Nickel Company, 67 Wall Street, New York, N. Y. This sixteen page folder, "Practical Pumping Problems and How They Are Solved", discusses in detail the uses of Monel, "K" Monel and "S" Monel for pump parts in applications where there is need for high resistance to corrosion, wear, pitting, or scoring. This includes different types of pumps, such as reciprocating, centrifugal, and rotary pumps. The booklet was prepared in collaboration with S. A. Tucker and F. A. Annett, associate editors of *Power*, and is being distributed without charge.

Starting with the September issue of volume seventeen, the *Journal of Chemical Education* made its appearance under a change in editorial staff. Dr. Otto Reinmuth, who edited the *Journal* since the retirement of Dr. Neil E. Gordon in 1932, resigned in order to give increased attention to his researches in pharmaceutical chemistry. The editorship has come to the capable hands of Dr. Norris W. Rakestraw of

Brown University. Coincident with the change in editorship, the editorial offices have been moved from the Kent Chemical Laboratory at the University of Chicago, Chicago, Illinois, to the Metcalf Chemical Laboratory, Brown University, Providence, Rhode Island.

In place of the large staff formerly associated with the editorship of the magazine, Dr. Rakestraw has selected the following group of assistant editors to serve with him: Hubert N. Alyea, Princeton University; Tenney L. Davis, Massachusetts Institute of Technology; Ed. F. Degering, F.A.I.C., Purdue University; William A. Felsing, F.A.I.C., University of Texas; Malcom M. Haring, University of Maryland; Philip A. Leighton, Stanford University; Laurence L. Quill, Ohio State University; and Elbert C. Weaver, Bulkeley High School, Hartford, Connecticut.

The *Journal* aims to be a "living textbook of chemistry", and to this end publishes on current developments in all fields of chemistry. The *Journal* is the official publication of the division of Chemical Education of the American Chemical Society.

"Pyrex" Brand Outer Standard Taper Ground Joints with Straight Side Walls

Corning Glass Works recently announced a new and improved type of Standard Taper Interchangeable Ground Joint with cylindrical (straight) outside walls as contrasted with customary tapered construction.

The manufacturer says that these new straight side walls permit more convenient mounting with the usual rubber covered ringstand clamps and provide a firmer, more rigid clamping; and also that the new construction insures greater mechanical strength in the joint itself.

A new, interesting and informative book—"The Evolution of Standard Taper Ground Joints" is free on request.

A cordial invitation is extended to inspect these new, improved Standard Taper Ground Joints with straight side walls at Booth No. 108, National Chemical Exposition, Stevens Hotel, Chicago, Illinois, December 11 to 15, 1940.

The Advertising Man's Plaint

The Chemist is a surly lout,
A skeptic and a scoffer.
He cares not what the labels shout
But what the contents offer.

Suspicious, rude, this doubting Thomas
A most ungrateful chap is he,
For though I rave, and praise, and promise,
He will not share my ecstacy.

Like pearls of wisdom is my plea
To city folks or country rubes.
But will the Chemist trust in me?
He puts his faith in glass test-tubes.

RAOUL J. STONER, F.A.I.C.

A meeting of the New York Branch of the American Pharmaceutical Association was held at Long Island University, Brooklyn, N. Y., on December ninth. A forum discussion was held on "The Nature and Control of Drug Store Experience for State Board Candidates". Among those participating were George W. Mather, secretary, New York State Board of Pharmacy; Lyman D. Fonda, professor of pharmacy; Robert R. Gerstner, pharmacist, and Eugene Levinstein, student and clerk.

CHEMISTS

Robert J. Moore, manager of sales development of the Bakelite Corporation, Bloomfield, New Jersey, addressed the Charleston, West Virginia, Section of the American Institute of Chemical Engineers on November twelfth on the subject, "Modern Surface Protection; Case Histories and Recent Important Coating Problems."

The National Defense effort has called two members of the chemistry faculty of the University of Idaho. Dr. James B. Reed is now at the Frankfort arsenal near Philadelphia. He has been replaced by Dr. Lowell V. Coulter from the University of California. Dr. P. A. Lasalle was called into active duty as captain to serve as technical director to the Adjutant General of the State of Idaho. His final orders gave him only twenty-four hours to leave the campus. He has been replaced by Mr. George Moersch of Pennsylvania State College.

A meeting of the American Section of the Society of Chemical Industry was held November 15th at The Chemists' Club, New York, N. Y. This was a joint meeting with the American Institute of Chemical Engineers. The Chairman, Dr. Lincoln T. Work, F.A.I.C., presided over the meeting which dealt with the science and application of plastics.

Dr. T. F. Bradley, F.A.I.C., of the American Cyanamid Company, spoke on the chemistry of plastics. The developments in synthetic plastics in this country have been far reaching. The "resinophore" hypothesis as well as the more abstract colloidal association hypotheses has now been supplanted by the functionality concepts of Carothers and of Kienle. These concepts and their applications to all types of plastics were discussed. Attention was called to the diversity of condensation polymers, whereas the "high molecular" class of addition polymers is at present limited to reactants which are possessed of terminal unsaturation. The implications of this as well as numerous other aspects of the chemistry and physics of industrial plastics were discussed.

Mr. C. W. Blount of the Technical Sales Division of The Bakelite Corporation spoke on the scope of the applications of plastics. He pointed out that each use of a plastic should be and generally is because of an outstanding property: lightness in weight; heat resistance; dimensional stability; insulating characteristics; color; toughness; and so on ad infinitum. The applications noted were as follows: in the Navy; in the Army; in the doctor's office and the hospital; in transportation; in laboratories; on the judge's bench; in communication; on the athletic field; in the oil field; the steel mill; the theatre; restaurants and store fixtures; in refrigerators; in the food industries; in merchandising displays; on cash sales books; in the rayon industry; and last but not least, the automotive, radio and aircraft industries.

Glyco Products Company, Inc., New York, N. Y., have approved plans for a new building in Brooklyn to cover an administrative department, research laboratory, and manufacturing division. Building operations will begin about December fifteenth.

North Carolina Notes

By Minnie A. Graham, F.A.I.C.

On October twelfth, the Charles M. Wall Hall of Science was dedicated at Mars Hill Junior College, Mars Hill, N. C. This new $100,000 building is a splendid addition to the Mars Hill campus. It provides, for the departments of mathematics, physics, chemistry, biology and home economics, spacious, well-lighted laboratories and class rooms, with up-to-date equipment. An interesting program preceded the dedication, including a science symposium with Professor Vernon E. Wood presiding. Speakers from various institutions in the state participated, among them Dr. Carey G. Mumford of State College, Raleigh, N. C., who had been a student at Mars Hill, and Dr. Milton L. Braun, professor of physics at Catawba College, Salisbury, N. C., who had been an instructor at Mars Hill. Dr. Braun's address was on "The Place of Science in Christian Education."

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At the first meeting of the North Carolina section of the American Chemical Society in the 1940-41 season, Dr. S. C. Lind, president of the Society, was the guest of the section. Dr. Lind's subject was "Radioactivity, Natural and Artificial." The meeting was held in the new chemistry laboratory, Withers Hall, on the State College Campus at Raleigh, October fourteenth, and was preceded by a dinner for members and guests. On October fifteenth, Dr. Lind spoke at the University of South Carolina in Columbia, S. C.

Mr. Walter S. Landis, vice president of the American Cyanamid and Chemical Corporation, visited the Charlotte plant of that corporation on November first, and then proceeded to Pinehurst where he addressed the fall meeting of the Piedmont section of the American Association of Textile Chemists and Colorists.

The Charlotte plant of the American Cyanamid and Chemical Corporation are planning for an extensive expansion program, including a two-story addition to the present plant, a garage, and an office building. Sixteen acres have just been purchased on which to locate the new buildings. At this plant chemicals for use in the textile industry are made.

⊕

Mr. Frank W. Johnson, fifty-nine, owner of the Johnson Chemical Company of Charlotte, N. C., died October nineteenth at his home in Charlotte. Mr. Johnson was a native of Rhode Island and had attended Brown University. For eighteen years he was southern manager for Arnold, Hoffman and Company. In December, 1939, he organized as owner the Johnson Chemical Company with main offices in Charlotte.

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The General Dyestuff Corporation has just completed their new building at 2459 Wilkinson Boulevard, Charlotte, N. C. The laboratories are equipped with the latest type of apparatus, research facilities, and machinery. The building contains approximately 64,000 square feet of floor space.

Technical Education in New South Wales

By J. N. Taylor, F.A.I.C.

Chemistry classes show an increased enrollment in technical colleges and trade schools in New South Wales, and the completion of certain courses is recognized by the Australian Chemical Institute.

The State system of technical education, according to the New South Wales Official Year Book 1937-38, (Part III), is under the direct control of the Department of Education of the State of New South Wales, and is administered by a Superintendent, who is also Assistant Director of Education, with general and financial procedure independent of other branches of the education system. The courses of instruction, however, are coördinated with those of the ordinary schools.

In addition to the Central Technical College at Ultimo (Sydney), there are technical colleges at Darlinghurst (Sydney), Newcastle, Wollongong and Broken Hill, and there are also seventeen trade schools, seven in the suburbs of Sydney, nine in country districts and one at Canberra (Australia Capital Territory). *The New South Wales Year Book* states that specialized instruction in the practice of a wide range of callings is provided for the apprentice and the journeyman, while higher courses, embracing the technology of the various trades and technical professions, may be followed by more advanced students.

The lower trade courses cover a period of three years in the trade schools, as a rule, but sometimes they are extended to five years. Comprehensive courses covering five years and higher courses of two years' duration are given in the Technical Colleges. Instruction is given in all branches of mechanical and electrical engineering, agriculture, applied art, bakery, biology, building, commercial subjects, geology, printing, public health, sanitation, sculpture, sheep and wool classing, domestic science, women's handicrafts (dressmaking, millinery, etc.), optometry and in manufacturing trades.

Day and evening classes are held. Some of the higher courses of evening instruction are coördinated with first-year courses at the University of Sydney. The satisfactory completion of any course of instruction is marked by the award of certificates. These are recognized by employers, and the Diploma Courses of the Technical Colleges are recognized by the Australian Chemical Institute as equivalent to Bachelor of Science courses in chemistry at an Australian university.

Students applying for admission to the technical courses are required to furnish evidence that they possess sufficient preparatory knowledge to take profitable advantage of the training, and a student is not usually admitted to a course unless actually engaged in the specific trade to which the course relates. Special provision is made for the admission of journeymen, without preliminary test, to any part of the courses relating to their trades. Young students are admitted if they furnish a guarantee to become apprenticed before reaching the limit of the age of apprenticeship.

A pre-apprenticeship course covering two years in general education and in work associated with skilled trades

was introduced in 1937 for boys who have completed two years in a junior technical school and show aptitude for technical work. Upon completion of the pre-apprenticeship courses, efforts are made to place students in suitable employment.

The fees payable for technical classes are very low, being usually at the rate of 5 shillings ($0.80 at the present approximate exchange rate of $3.20 to £1) for thirteen weeks for juniors, and ten shillings ($1.60) for seniors.

The number of pupils receiving instruction in technical colleges and trade schools in New South Wales had gradually increased. In 1939 it was over 37,000, as compared with 15,152 in 1931. The number of teachers and lecturers in 1939 was 1,195, compared with 576 in 1931. Increased enrollment has been most marked in the following classes: sheep and wool classing, engineering, chemistry, mathematics and commercial subjects.

New "PYREX" brand 6" Desiccators

Corning Glass Works announces a new 6" size "PYREX" brand Desiccator in two styles—No. 3118 with, and 3078 without sleeve, designed to make vacuum work easier and faster.

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Pyrex brand Balanced Chemical Glass —balanced for mechanical strength, heat resistance and chemical stability— is used in the construction of "Pyrex" desiccators, which will be available through laboratory supply dealers on December sixteenth.

For prices write your dealer or Corning Glass Works, Corning, N. Y.

The Food Research Laboratories, Long Island City, New York, announce the appointment of Dr. Daniel Melnick as chief chemist. Dr. Melnick until now has been the chief chemist associated with the Vitamin Research Program at the University of Michigan. He is well known for his contributions to the chemistry and physiology of proteins, enzymes, and vitamins.

Dr. Joseph W. E. Harrisson of LaWall and Harrisson, Consultants, Philadelphia, on November eighteenth addressed the members of the Sanitary Science Course, Medical School, University of Pennsylvania, upon "Food Preservation", and a few days earlier he addressed the West Chester Lions Club on "Food and Drug Adulteration".

M. L. Crossley, F.A.I.C., director of research, Calco Chemical Division of the American Cyanamid Company, spoke on the "Research and Development of the Sulfanilamides" before a meeting of the New York Branch of the American Pharmaceutical Association, held November eleventh at Columbia University, New York, N. Y.

The discovery of what is *true*, and the practice of that which is *good* are the two most important projects of philosophy.

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COLLEGE TEACHER. American, Ph. D., F.A.I.C., Sigma Xi. Inorganic analytical, organic and industrial chemistry. Several years' university teaching, six years' experience in the chemical industry in heavy chemicals, analytical methods, control, supervision. Publications. Location anywhere. Please reply to Box 31, THE CHEMIST.

CHEMIST, J.A.I.C., A.B. degree 1940. Phi Beta Kappa. Two years of college work in analytical chemistry—qualitative and quantitative; also courses in inorganic, organic, physical chemistry. Interested in any chemistry work. Please reply to Box 53, THE CHEMIST.

CHEMIST, F.A.I.C. B.S. and M.S. degrees. American. Over thirty years' experience in Agricultural Chemical work along soil, fertilizer and plant lines in both research and analytical capacity. Experienced in by-product waste utilization and patent searches. Available for consulting work. Please reply to Box 51, THE CHEMIST.

CHEMIST, J.A.I.C. B.S. 1940. Six months' experience during summers in rubber factory. Fluent French and German. Interested in position as laboratory assistant or translator. Please reply to Box 55, THE CHEMIST.

COMMERCIAL DEVELOPMENT. Chemical engineer with twenty years of experience supervising research and development in petroleum refining seeks change. Please reply to Box 121, THE CHEMIST.

CHEMIST, F.A.I.C., A.C.S. Doctor of Chemistry. 29 years manufacturing and developing experience in intermediates, dyestuffs, metal salts and food products. Original manufacturing processes developed. Successful in handling labor. Considerable consulting and business experience. First class references. Please reply to Box 35, THE CHEMIST.

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PRINCIPAL CHEMIST (explosives) $5,600.

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ASSOCIATE CHEMIST (explosives) $3,200.

ASSISTANT CHEMIST (explosives) $2,600.

Chemists are urged to apply for civil service examinations now open for various grades of explosives chemist, with salaries from $2,600 to $5,600 a year. Applications for these positions will be rated as received during the year November 1940 to November 1941. No written test will be given. Applicants will be rated on their qualifications. Degree in chemistry or chemical engineering and professional experience in chemistry, partly in the field of explosives chemistry, are required. Application forms may be obtained from any first or second class post office, or from the U. S. Civil Service Commission, Washington, D. C.

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